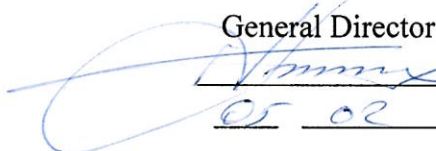




**Joint Stock Company
Caspian Pipeline Consortium-R**

AGREED
Consultant, Operations

_____ K. Yoss
_____ 2019

APPROVED
General Director

_____ N.N. Gorban
_____ 2019

TERMS OF REFERENCE

for R&D Work Aimed at Reducing Emissions During Loading Operations at the CPC-R MT SPM.

1. Acronyms

CPC-R means Caspian Pipeline Consortium-R;

MT means Marine Terminal;

TF means Tank Farm;

SF mean Shore Facilities;

SPM means Single Point Mooring;

SBS means Small Boat Shelter;

HTF means Hydrotechnical Facility;

OCC means Operations Control Center;

OSR means Oil Spill Response;

HSE mean Health, Safety and Environment;

OSR Plan means CPC-R Marine Terminal Oil Spill Response Plan.

2. Purpose:

Process of loading an export tanker at the CPC-R MT SPM includes but not limited to displacement of inert gases to atmosphere from cargo oil tanks with the crude oil incoming to the tankers. Depending on prevailing wind patterns inert gases from the tanker's cargo oil tanks propagate in atmosphere towards residential communities adjacent to the MT. As a result the MT management receives complaints of oil odor from local residents. To prevent complaints and maintain the Company's positive image one should develop certain measures aimed at reducing the emissions.

3. CPC-R Marine Terminal Description:



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MT is located approximately 9 nautical miles westwards of the entrance to the Novorossiysk Bay on the RF Black Sea coast. MT is designed for export of crude oil produced at the RF and Eastern Kazakhstan oil deposits to the international market. CPC-R Marine Terminal started its operation in October 2001.

At present CPC-R Marine Terminal exports about 67 million tonnes of crude a year by way of handling 55 tankers a month on the average. Further increase of the system's throughput up to 80 million tonnes a year is being considered.

MT includes the following structures:

- Tank Farm with total volume of 1,000,000 m³. Tank Farm is located at approximately 9 km off the sea and the SF at a designed elevation of 251.8 meters.
- Process Pipeline with Dn=1,400 mm (~56 inches) connecting the TF and the SF.
- Shore Facilities are located directly on the shoreline. Shore Facilities include an administrative building accommodating the pipeline system operations control center (OCC), lease account custody transfer meter (LACT), pressure reduction station, pig launchers and receivers, multi-purpose auxiliary tank, small boat shelter (SBS) and other facilities.
- MT Hydrotechnical Facilities:
 - SPM CPC-1 lies in position: latitude 44°37'46.11" N, longitude 037°38'16.07" E moored in a depth of 56 metres, approximately 4.5 km off the shoreline;
 - SPM CPC-2 lies in position: latitude 44°37'19.94" N, longitude 037°39'40.08" E moored in a depth of 57 metres, approximately 4.5 km off the shoreline;
 - SPM CPC-3 lies in position: latitude 44°37'45.04" N, longitude 037°36'43.02" E moored in a depth of 58 metres, approximately 4.5 km off the shoreline;
 - Three submarine pipelines with inner diameter of 1,067 mm (~42") connect the shore piping with three single point mooring buoys SPM CPC-1, SPM CPC-2 and SPM CPC-3;
 - Small Boat Shelter Berth with the Access Bridge;
 - Slip for retrieving oil loading hoses;
 - Shoreline reinforcement;
 - Wavebreaker;
 - Sea area.

The Guidelines for Interaction between the OCC Dispatcher Load and the CPC-R Mooring Master during Tanker Handling at SPM were developed at the MT with the aim of reducing the scope of inert gas emissions from the tanker's cargo oil tanks if southern winds prevail.

4. Scope of Services:

353900, Russian Federation, Krasnodar Krai, Novorossiysk, Primorsky Okrug, Marine Terminal
Phone: +7 8617 642552, fax: +7 8617 642571
119017, Russian Federation, Moscow, Bolshaya Ordynka St., 40, bldg. 4, 4th floor
Phone: +7 495 745 8770, fax: +7 495 7458772



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- 4.1. Consider sufficiency, efficiency of measures as set out in the Guidelines for Interaction between the OCC Dispatcher Load and the CPC-R Mooring Master during Tanker Handling at SPM as regards current practice of crude oil transshipment through the MT;
- 4.2. Develop organizational arrangements aimed at reducing the emissions during cargo handling at SPM;
- 4.3. Develop technical arrangements and devices aimed at reducing the emissions during cargo handling at SPM;
- 4.4. Submit justifications for each of the proposed arrangements;
- 4.5. Submit conclusions re efficiency and possibility for implementation of the proposed arrangements on a going concern basis.

The report on the scope of services shall be provided both in hard copy and soft copy.

5. Report structure:

- 5.1. Review of the current situation;
- 5.2. Organizational arrangements;
- 5.3. Technical and process arrangements;
- 5.4. Justification of proposed arrangements;
- 5.5. Efficiency of particular arrangements;
- 5.6. Indicative estimate of the cost of the above arrangements.

6. Rights of the Parties for the work results:

- 6.1. The Customer shall enjoy exclusive rights for work results received in the course of Agreement performance, including the intellectual activity results subject to legal protection;
- 6.2. Exercise of exclusive rights for the work results including the intellectual activity results subject to legal protection and the use thereof shall be performed on the basis of a separate agreement. The Contractor may transfer the work result to a third party only subject to a preliminary written consent of the Customer;
- 6.3. The Contractor shall transfer the property and inventories created or acquired in the process of Work performance under this Agreement to the Customer with the execution of appropriate Acceptance Act and the written notice of such transfer to the Customer;
- 6.4. The work results including the intellectual activity results subject to legal protection, prototypes of equipment and samples of materials, design documentation shall be transferred to the Customer under the Acceptance Act simultaneously with signing such Acceptance Act.

ATTACHMENTS

1. Attachment 1 – Guidelines for Interaction between the OCC Dispatcher Load and the CPC-R Mooring Master during Tanker Handling at SPM, VRF CPC 44.10.2018



**Joint Stock Company
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